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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,909	01/05/2004	Avraham Levy	27282	5381

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EXAMINER	
IBRAHIM, MEDINA AHMED	
ART UNIT	**PAPER NUMBER**
1638	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/750,909	LEVY ET AL.	
	Examiner	Art Unit	
	Medina A. Ibrahim	1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 April 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,6-10,12 and 13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,6-10,12 and 13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Applicant's arguments filed 04/03/07 in reply to the Office action of 01/04/07 has been entered. Claims 1, 6 and 10 are amended.

All previous objections and rejections not set forth below have been withdrawn in view of Applicant's amendment and/or arguments.

Claims 1, 3, 6-10, and 12-13 are pending and are examined.

35 USC § 112, 2nd paragraph

Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 is indefinite because "the mobile DNA" lacks antecedent basis in claim 1.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 3, 10, and 12-13 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for while being enabling for a method of producing a mutant miniature tomato plant having a desired characteristics, does not reasonably provide enablement for a method that employs any mutant miniature plant

species, other than *L.esculentum* species. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

The claims are drawn to a method for selecting a mutant miniature plant having a desired trait, the method comprising providing a population of miniature plants, wherein said miniature plants have reduced size, maturation to produce viable seeds or tubers at a plant density of at least ten-fold higher than standard growth conditions used for a commercial plant of the same species, and capable of being crossed with a commercial plant of the same species; generating mutant miniature plants in said miniature plant population by inducing mutagenesis via at least one of a T-DNA and a transposon sequence to produce a mutagenized miniature plant population; and selecting a mutant miniature plant having said desired trait.

The specification teaches production and screening of tomato mutant plants having the characteristics set forth in the claims; mutagenesis of said tomato plants by EMS, breeding and selection of mutant miniature tomato for a desired agronomic trait. No guidance has been provided regarding the suitability of the disclosed method using plant species other than tomato. The specification fails to disclose guidance for the availability, identification or production of miniature plants from all plant species including grape, prune, eggplant, citrus fruits, and apple having the characteristics as recited in the claims 1, 6, and 10. For example, the specification fails to disclose any specific eggplant, grape, or citrus miniature plants that are essential starting material for the claimed invention.

The production or "providing" of miniature plants for all plant species, which are essential starting material for the making and/or using of the broadly claimed invention, is unpredictable. For example, the introgression of a miniature gene to provide a miniature plant is unpredictable, in a species that does not have a narrow genetic base. Bennett et al (1995. pp.88-99, In: Genetically Modified Foods. American Chemical Soc., Washington, D.C. Applicant's IDS) teach for example on page 90, lines 1-33 that in the Solanaceae, that species of Lycopersicon other than L. esculentum have a broad genetic base. Hunsperger et al (1996. US Patent No. 5,523,520) teach for example in column 3, lines 26-46, that in the Solanaceae that the introgression of a miniature plant gene in one genetic background in any plant of the same Solanaceae species is unpredictable in producing a miniature plant. Hunsperger et al teach for example in column 3, lines 40-41 that a miniature plant gene identified and genetically stabilized in one cultivar of Petunia hybrida, a member of the Solanaceae, does not confer a miniature phenotype when introgressed into the genome of a variety of other Petunia hybrida cultivars. Therefore, one of skill in the art would recognize that it is unpredictable that all tomato species' genotypes could be made into miniature tomatoes by the single gene introgression of a gene that confers a miniature plant phenotype in a selected tomato genotype for every tomato species as claimed.

The working example disclosed in the specification is limited to the production of mutant miniature tomato plants made with *L.esculentum* and Micro-Tom. Micro-Tom is a distinct class of dwarf tomato with characteristics of diminutive in plant height, fruit and leaf size. The specification does not disclose any other plant species with such

characteristics. The state of the prior art does not amend the deficiency. Therefore, absent the availability of miniature plants with said specific characteristics or absent guidance regarding the production of a mutant miniature plant other mutant miniature tomato plants, one skilled in the art would not be able to produce mutant miniature plants of any plant species, without undue experimentations.

Claim Rejections - 35 USC § 102/103

Claims 6-9 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over each of Khush et al (1985. Int. Rice Comm. Newsletter 34(2): 11-126 (in record); Lahiri et al (1993. Bangladesh J. Bot. 22(2): 167-172, in record); or Privalov et al (1991. Genetika 27(3):450-457, in record) .

The claims are drawn to a mutant miniature plant population having reduced size, matures to produce viable seeds or tubers at a density of at least 10 fold higher at standard growth conditions for a commercial plant of the same species, capable of being crossed with a commercial plant of the same species, and carries a mutation induced by mutagenesis via at least one of T-DNA and a transposon sequence; said commercial plant of the same species is used for food, fiber or flowers, produces berry-type fruit or a tomato, grape, prune, eggplant, citrus fruits or apple.

Khush et al teach the miniature rice plant IR36; tissue culture-induced and chemical-induced mutagenesis of a mutant miniature plant; production of mutant populations of miniature plants derived from the tissue culture; selection of mutant miniature rice plants for a desired trait (page 111, lines 43-47, and page 122, lines 18-

30). Khush et al also teach the use of miniature rice plants to produce a population of genetically variant miniature rice plants, by utilizing tissue culture induced mutational processes, and the selection of miniature rice breeding lines for salt tolerance, cold tolerance, disease resistance, adaptation to soil type, yield, and protein and amino acid composition of grain (page 121, line 46 to page 122, lines 15, 18-30). Khush et al further teach the introgression of the desired traits into commercial plants by crossing commercial plants with naturally occurring and mutant miniature plants comprising the desired traits (Tables 3 and 5 on pages 115 and 119).

Lahiri et al teach the miniature rice plants of IR8 and BINASAIL; use of said miniature rice plants for production of populations of mutant miniature plants with gamma irradiation; selection of mutant miniature plants with a desired trait including color and chalkiness of grains, kernel weight, kernel length-breadth ratio, hulling recovery, yield, kernel amylose or protein content, and disease resistance (Tables 1 and 2 on page 167; pages 168; 171). Lahiri et al also teach crossing the selected mutant miniature plants comprising the desired trait with a commercial plant, to produce a commercial plant comprising said desired trait.

Privalov et al teach the production of a population of mutant miniature tomato plants comprising the wilty dwarf mutation; to produce a population of M 1 mutagenized plants; and selection of a mutant miniature tomato plant with the desired trait (Summary on page 457).

The mutant miniature plants taught by Khush et al, Lahiri et al (1984), and

Privalov et al, differ from the claimed plants only in their derivation and the process by they were made. However, the process of obtaining mutant miniature plant would not confer a unique characteristic to the resultant mutant miniature tomato plants. See In re Thorpe, 227 USPQ 964,966 (Fed. Cir. 1985), which teaches that a product-by process claim may be properly rejected over prior art teaching the same product produced by a different process, if the process of making the product fails to distinguish the products. See also MPEP 2113. The maturation to produce viable seeds at higher density as compared to non-miniature plants of the same species would be inherent property.

Remarks

Claims 1, 3, 10, and 12-13 are deemed free of the prior art of record.

No claim is allowed.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Medina A. Ibrahim whose telephone number is (571) 272-0797. The Examiner can normally be reached Monday -Thursday from 8:00AM to 5:30PM and every other Friday from 9:00AM to 5:00 PM. Before and after final responses should be directed to fax nos. (703) 872-9306 and (703) 872-9307, respectively.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Anne Marie Grunberg, can be reached at (571) 272-0975.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

7/3/07
Mai

MEDINA A. IBRAHIM
PRIMARY EXAMINER